

CLAIMS

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1. A vision system for imaging a scene using a dynamically reconfigurable photodetector array comprising:
    - a video camera having at least one reconfigurable photodetector array capable of imaging a scene;
    - means for controlling characteristics of imaging by said photodetector array; and
    - a computer system for receiving signals from said photodetector array representing the scene imaged by said photodetector array and sending signals to said controlling means to configure the characteristics of imaging by said photodetector.
  2. The system according to Claim 1 wherein said photodetector array provides signals representing a frame with one or more windows having pixels.
  3. The system according to Claim 2 wherein said photodetector array further comprises means for controlling the resolution of the pixels in each of said windows.
  4. The system according to Claim 2 wherein one or more of said windows overlap in said frame.
  5. The system according to Claim 1 further comprising a client-server interface between said computer system and said controlling means.
  6. The system according to Claim 1 wherein said controlling means represents a controller located on said photodetector array.
  7. The system according to Claim 1 in which said controlling means represents a logic device separate from said photodetector array..
  8. The system according to Claim 1 wherein said computer system is integrated into said video camera.

9. The system according to Claim 1 wherein said computer system is separate from said video camera.

10. The system according to Claim 1 wherein said computer system sends signals to said controlling means representing window request commands that contain information used to dynamically reconfigure one or more of said photodetector arrays imaging characteristics.

11. The system according to Claim 1 wherein said characteristics represent spatial and temporal parameters.

12. The system according to Claim 1 wherein said photodetector array contains a plurality of individual pixels that have fixed dimensions.

13. The system according to Claim 1 wherein said photodetector array represents a complementary metal oxide semiconductor photodetector array responsive to radiation in the visible spectral range.

14. The system according to Claim 1 wherein said photodetector array represents a device responsive to infrared wavelengths.

15. The system according to Claim 1 wherein said photodetector array is bonded to a complementary metal oxide semiconductor read-out integrated circuit.

16. The system according to Claim 1 wherein said computer system and said video camera are part of a closed-loop interactive system.

17. The system according to Claim 2 wherein said computer system is capable of analyzing video imagery for target objects and determining the necessary position, size, shape, resolution, and frame rate of multiple, overlapping windows within said vision system's field of view.

18. The system according to Claim 2 wherein said computer system is capable of determining the spectral signatures of said target objects.

19. The system according to Claim 2 wherein said computer system further comprises a user interface enabling a human operator to analyze video imagery for target objects and determine the necessary position, size, shape, resolution, frame rate, and spectral content of multiple windows within said vision system's field of view.

20. The system according to Claim 1 wherein said computer system further comprises means for generating a window request command to said video camera identifying said characteristics.

21. The system according to Claim 2 wherein said computer system further comprises means for generating a window request command to said video camera identifying said characteristics, in which said characteristics represents any of position, size, shape, resolution, frame rate, and spectral content of multiple windows.

22. A method of tracking objects in a scene comprising a frame of windows comprising the steps of:

locating at least one object to be tracked in one of said windows in a low resolution;  
forming one or more windows having said object in a high resolution; and  
Identifying said object in said windows of said high resolution.

23. The method according to Claim 22 wherein a plurality of said windows of high resolution are formed corresponding to the number of targets in said scene.